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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of:

Revision of the Commission's Rules
To Ensure Compatibility with
Enhanced 911 Emergency Calling Systems

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CC Docket No. 94-102

**REQUEST FOR EXTENSION OF TIME TO IMPLEMENT E911/TTY
COMPATIBILITY REQUIREMENT FOR WIRELESS OPERATORS**

On behalf of the E911 Wireless Coalition ("Coalition"),¹ the Personal Communications Industry Association ("PCIA"),² by its attorneys, respectfully requests an extension of time for wireless operators to implement compatibility between emergency calling systems and text telephone ("TTY") devices for individuals with hearing disabilities. While some TTYs are compatible with analog wireless technologies, the industry believes that significant technical issues may exist with respect to passing TTY signaling through the vocoders and networks used by all digital wireless technologies. In order to achieve compatibility between TTYs and digital

¹ The members of the Coalition include: PCIA, Omnipoint Communications, PrimeCo Personal Communications, BellSouth Corporation, Bell Atlantic Mobile, Ericsson, Inc., Nokia, Sprint Spectrum, L.P., Nortel, Aerial Communications, Inc., Siemens Wireless Terminals, U S WEST Communications, and Motorola, Inc.

² PCIA is the international trade association created to represent the interests of both the commercial and the private mobile radio service communications industries. PCIA's Federation of Councils includes: the Paging and Narrowband PCS Alliance, the Broadband PCS Alliance, the Specialized Mobile Radio Alliance, the Site Owners and Managers Association, the Association of Wireless System Integrators, the Association of Communications Technicians, and the Private System Users Alliance. In addition, as the FCC-appointed frequency coordinator for the 450-512 MHz bands in the Business Radio Service, the 800 and 900 MHz Business Pools, the 800 MHz General Category frequencies for Business Eligibles and conventional SMR systems, and the 929 MHz paging frequencies, PCIA represents and serves the interests of tens of thousands of licensees.

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systems, additional testing, development, and implementation work is ongoing. Pragmatically, however, given the other implementation challenges of the *E911 Order*,³ ensuring TTY/E911 compatibility for all digital systems will be impossible in the time constraints set forth in the *E911 Order*. Accordingly, the Coalition requests the Commission to extend the implementation date for TTY/E911 compatibility for at least 18 months.

I. INTRODUCTION

The Commission's July 26, 1996, Report and Order on Enhanced 911 ("E911"), among other things, mandated that "[a]s of October 1, 1997, licensees subject to [E911 obligations] . . . must be capable of transmitting 911 calls from individuals with speech or hearing disabilities through means other than mobile radio handsets, *e.g.*, through the use of [TTYs]."⁴ Noting significant technical problems with this mandate, a number of entities, including PCIA and the Telecommunications Industry Association ("TIA"), sought reconsideration of this aspect of the regulations.

These parties stated that analog wireless/TTY compatibility is not an issue because analog wireless phones are capable of transmitting TTY-compatible tone signals. However, digital wireless technologies rely on "vocoders" to translate analog speech into binary format for transmission in digital form. As explained by TIA:

The difficulty in transmitting TTY information over digital wireless systems is that the traditional IA2 TTY system is not well reproduced by a

³ Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, 11 FCC Rcd 18676 (1996) ("*E911 Order*").

⁴ *E911 Order*, Appendix C, at 2; 47 C.F.R. § 20.18(c).

system designed to model the human vocal tract. Thus, the quality of the output of a TTY signal through a modern vocoder will vary depending on the particular type of vocoder used (*e.g.*, GSM-based systems such as PCS1900, IS-54/IS-136, or IS-95).

In effect, the vocoders in existence today in fielded units represent a mathematical “model” of the human vocal tract for efficiency in the analog voice to digital translation. Because TTY signaling tones are not “sounds” typically produced by vocal cords, the vocoders do not reproduce these tones well.

II. ARGUMENT

Wireless operators’ ability to meet the TTY/E911 compatibility requirement is predicated on intensive and cooperative work by wireless device manufacturers, TTY manufacturers, and standards organizations. A number of projects are currently ongoing in this regard, including the GSM North America Phase I and Phase II initiatives and CDG E911 Technical Team evaluations. However, due to competing demands, significant work remains to be accomplished on these initiatives. Wireless carriers, for example, have been putting forth an all-out effort to work with local public safety groups to develop wireless E911 state regulations and with standards organizations and vendors to implement the vast array of other E911 capabilities mandated by the *E911 Order*. Relevant personnel from manufacturers of wireless equipment and TTYs, by the same token, have been absorbed in the recent Section 255 proceedings intended to address wireless compatibility issues for Americans with disabilities more broadly.

Even with these competing demands, a great deal has been accomplished. The results were extremely encouraging, although further testing in “real world” environments might still be considered. Indeed, the initial results indicate that the vocoder issue may be less significant than

originally thought. However, as stated earlier, more research is needed to verify this preliminary finding. There will also be a conference in Washington, D.C., in mid-September hosted by CTIA that may result in a more coordinated effort among manufacturers to enable proper cross-technology information exchange. The ability to work within a forum capable of achieving collective consensus among individuals with hearing and speech disabilities will be critical to timely resolution of standards and technical issues.

Simply put, great challenges still must be met in order to facilitate compatibility between digital wireless systems and TTYs. Time, for example, is required to translate test results into recommendations for product changes and development. At this point, it becomes a Section 255 issue as well. Options being tested and discussed include acoustic coupling (*e.g.*, an accessory with a standard telephone handset capable of matching the geometry of acoustic couplers on TTYs) and direct coupling (*e.g.*, through retrofitted 2.5/3.55 mm audio jacks in TTYs). Other potential ideas being explored include a unit interface box with connectivity to wireless phones and the RJ11 jack on some TTYs, as well as translators to convert Baudot into alternative data protocols.

Unfortunately, even once these issues are settled, there are a host of implementation issues arising that will complicate TTY/E911 compatibility. For example, most CDMA wireless phones currently in the market do not have headset connectors, which is the interface route that most GSM operators appear to be focusing on for accessory development. Moreover, if accessories need to be developed to enable TTY users to use wireless handsets, time is required to identify manufacturers willing to produce the products, independent of the time it will actually take to develop and build those products. Furthermore, to the extent TTY manufacturers are

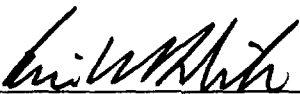
willing and able to retrofit their products, time will be needed for such manufacturers to develop and publicize these retrofitting programs.


III. CONCLUSION

As discussed above, efforts are underway to achieve the TTY/E911 compatibility sought by the Commission. As shown, however, this effort is complicated, requires consensus among multiple industries, and is part of a larger ongoing process to make all communications products and services more accessible to, and usable by, individuals with disabilities. At the same time, compatibility does, in fact, exist for analog wireless technologies as an interim measure. The Coalition therefore requests an extension of time from the Commission to complete work on E911/TTY compatibility.

Respectfully submitted,

PERSONAL COMMUNICATIONS INDUSTRY ASSOCIATION

By: 
Eric W. DeSilva
Stephen J. Rosen
WILEY, REIN & FIELDING
1776 K Street, NW
Washington, DC 20006
(202) 429-7000

By: 
Mark J. Golden,
Senior Vice President, Industry Affairs
Mary E. Madigan,
Vice President, External Affairs
PERSONAL COMMUNICATIONS
INDUSTRY ASSOCIATION
500 Montgomery Street, Suite 700
Alexandria, VA 22314-1561
(703) 739-0300

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